

PATENT
Case No. US030201
(7790/484)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:)
BERND CLAUBERG)
Serial No.: 10/562,511)
Filed: DECEMBER 28, 2005)
For: SINGLE LED DRIVER)
FOR A TRAFFIC LIGHT)
Examiner: ALEMU, E.
Group Art Unit: 2821

RESPONSE TO NOTICE OF NONCOMPLIANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Communication dated October 10, 2007, attached is a Corrected Amendment and Response to Office Action dated July 3, 2007, in which claim 2 (Cancelled) now appears at the bottom of page 3.

October 19, 2007
Case No.: US030201 (7790/484)
Serial No.: 10/562,511
Filed: December 28, 2005
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SUMMARY

Reconsideration of the rejection of claims 1, 3-6, and 8-10 is requested. The Applicant respectfully submits that claims 1, 3-6, and 8-10 fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested.

Dated: November 1, 2007

Respectfully submitted,
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PATENT
Case No. US030201
(7790/484)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CORRECTED AMENDMENT AND RESPONSE TO OFFICE ACTION

DATED JULY 3, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated July 3, 2007, please amend the application as set forth below.

September 11, 2007
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Serial No.: 10/562,511
Filed: December 28, 2005
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SPECIFICATION AMENDMENTS

Please add the following paragraph before the first paragraph beginning at page 1, line 1:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is the U.S. National Stage entry of International Application No. PCT/IB04/02056, filed June 21, 2004, which claims the benefit of U.S. Provisional Application No. 60/483,777, filed June 30 2003, both of which are incorporated herein in their entirety by reference.

CLAIM AMENDMENTS

Please amend the claims as follows:

1. (Currently amended) A traffic light (10, 11), comprising:
 - a voltage source (V_S);
 - a first LED circuit including a series connection of a first LED array (30), a first current limiter (31) and a first electronic switch (32) to said voltage source (V_S);
a second LED circuit connected in parallel to said first LED circuit, said second LED circuit including a series connection of a second LED array (40), a second current limiter (41) and a second electronic switch (42) to said voltage source (V_S); and
a switch controller (21) operable to selectively open and close said first electronic switch (32),

wherein said first current limiter (31) controls a flow of a first LED current (I_{RL}) from said voltage source (V_S) through said first LED array (30) whenever said switch controller (21) closes said first electronic switch (32), and

wherein the flow of the first LED current (I_{RL}) from said voltage source (V_S) through said first LED array (30) is impeded whenever said switch controller (21) opens said first electronic switch (32),

wherein said switch controller (21) is further operable to selectively open and close said second electronic switch (42),

wherein said second current limiter (41) controls a flow of a second LED current (I_{YL}) from said voltage source (V_S) through said second LED array (40) whenever said switch controller (21) closes said second electronic switch (42),

wherein the flow of the second LED current (I_{YL}) from said voltage source (V_S) through said second LED array (40) is impeded whenever said switch controller (21) opens said second electronic switch (42), and

wherein said switch controller (21) is further operable to prevent simultaneous closure of said first electronic switch (32) and said second electronic switch (42).

2. (Cancelled)

3. (Currently amended) The traffic light (10, 11) of claim 1[[2]], further comprising:

a third LED circuit connected in parallel to said first LED circuit and said second LED circuit, said third LED circuit including a series connection of a third LED array (50), a third current limiter (51) and a third electronic switch (52) to said voltage source (V_S),

wherein said switch controller (21) is further operable to selectively open and close said third electronic switch (52),

wherein said third current limiter (51) controls a flow of a third LED current (I_{GL}) from said voltage source (V_S) through said third LED array (50) whenever said switch controller (21) closes said third electronic switch (52), and

wherein the flow of the third LED current (I_{GL}) from said voltage source (V_S) through said third LED array (50) is impeded whenever said switch controller (21) opens said third electronic switch (52), and

wherein said switch controller (21) is further operable to prevent simultaneous closure of said second electronic switch (42) and said third electronic switch (52).

4. (Currently amended) The traffic light (10, 11) of claim 3, further comprising:

a fourth LED circuit connected in parallel to said first LED circuit, said second LED circuit and said third LED circuit, said fourth LED circuit including a series connection of a fourth LED array (44), a fourth current limiter (45) and a fourth electronic switch (46) to said voltage source (V_S),

wherein said switch controller (21) is further operable to selectively open and close said fourth electronic switch (46),

wherein said fourth current limiter (45) controls a flow of a fourth LED current from said voltage source (V_S) through said fourth LED array (44) whenever said switch controller (21) closes said fourth electronic switch (46), and

wherein the flow of the fourth LED current from said voltage source (V_S) through said fourth LED array (44) is impeded whenever said switch controller (21) opens said fourth electronic switch (46), and

wherein said switch controller (21) is further operable to prevent simultaneous closure of said third electronic switch (52) and said fourth electronic switch (46).

5. (Currently amended) The traffic light (10, 11) of claim 4, further comprising:
a fifth LED circuit connected in parallel to said first LED circuit, said second LED circuit, said third LED circuit and said fourth LED circuit, said fifth LED circuit including a series connection of a fifth LED array (54), a fifth current limiter (55) and a fifth electronic switch (56) to said voltage source (V_S),

wherein said switch controller (21) is further operable to selectively open and close said fifth electronic switch (56),

wherein said fifth current limiter (55) controls a flow of a fifth LED current from said voltage source (V_S) through said fifth LED array (54) whenever said switch controller (21) closes said fifth electronic switch (56), and

wherein the flow of the fifth LED current from said voltage source (V_S) through said fifth LED array (54) is impeded whenever said switch controller (21) opens said fifth electronic switch (56), and

wherein said switch controller (21) is further operable to prevent simultaneous closure of said fourth electronic switch (46) and said fifth electronic switch (56).

6. (Currently amended) A traffic light (60, 61), comprising:
a current source (I_S);
a first LED circuit connected in series to said current source (I_S), said first LED circuit including a parallel connection of a first LED array (80) and a first electronic switch (81);
a second LED circuit connected in series to said first LED circuit, said second LED circuit including a parallel connection of a second LED array (90) and a second electronic switch (91);

a switch controller (71) operable to selectively open and close said first electronic switch (81),

wherein a first LED current (I_{RL}) flows from said current source (I_S) through said first LED array (80) whenever said switch controller (71) opens said first electronic switch (81), and

wherein the flow of the first LED current (I_{RL}) from said current source (I_S) through said first LED array (80) is impeded whenever said switch controller (71) closes said first electronic switch (81),

wherein said switch controller (71) is further operable to selectively open and close said second electronic switch (91),

wherein a second LED current (I_{YL}) flows from said current source (I_S) through said second LED array (90) whenever said switch controller (71) opens said second electronic switch (91),

wherein the flow of the second LED current (I_{YL}) from said current source (I_S) through said second LED array (90) is impeded whenever said switch controller (71) closes said second electronic switch (91), and

wherein said switch controller (71) is further operable to prevent simultaneous opening of said first electronic switch (81) and said second electronic switch (91).

7. (Cancelled)

8. (Currently amended) The traffic light (60, 61) of claim 6 [[7]], further comprising:

a third LED circuit connected in series to said second LED circuit, said third LED circuit including a parallel connection of a third LED array (100) and a third electronic switch (101),

wherein said switch controller (71) is further operable to selectively open and close said third electronic switch (101),

wherein a third LED current (I_{GL}) flows from said current source (I_S) through said third LED array (100) whenever said switch controller (71) opens said third electronic switch (101), and

wherein the flow of the third LED current (I_{GL}) from said current source (I_S) through said third LED array (100) is impeded whenever said switch controller (71) closes said third electronic switch (101), and

wherein said switch controller (71) is further operable to prevent simultaneous opening of said second electronic switch (91) and said third electronic switch (101).

9. (Currently amended) The traffic light (60, 61) of claim 8, further comprising:
a fourth LED circuit connected in series to said ~~fourth~~ third LED circuit, said fourth LED circuit including a parallel connection of a fourth LED array (93) and a fourth electronic switch (94),

wherein said switch controller (71) is further operable to selectively open and close said fourth electronic switch (94),

wherein a fourth LED current flows from said current source (I_S) through said fourth LED array (93) whenever said switch controller (71) opens said fourth electronic switch (94), and

wherein the flow of the fourth LED current from said current source (I_S) through said fourth LED array (93) is impeded whenever said switch controller (71) closes said fourth electronic switch (94), and

wherein said switch controller (71) is further operable to prevent simultaneous opening of said third electronic switch (101) and said fourth electronic switch (94).

10. (Currently amended) The traffic light (60, 61) of claim 9, further comprising:
a fifth LED circuit connected in series to said ~~fifth~~ fourth LED circuit, said fifth LED circuit including a parallel connection of a fifth LED array (103) and a fifth electronic switch (104),

wherein said switch controller (71) is further operable to selectively open and close said fifth electronic switch (104),

wherein a fifth LED current flows from said current source (I_S) through said fifth LED array (103) whenever said switch controller (71) opens said fifth electronic switch (104), and

wherein the flow of the fifth LED current from said current source (I_S) through said fifth LED array (103) is impeded whenever said switch controller (71) closes said fifth electronic switch (104), and

wherein said switch controller (71) is further operable to prevent simultaneous opening of said fourth electronic switch (94) and said fifth electronic switch (104).

-- REMARKS --

The present amendment replies to an Office Action dated July 3, 2007. Claims 1-10 are currently pending in the present application. Claims 1, 3-6, and 8-10 have been amended and claims 2 and 7 cancelled herein. In the Office Action, the Examiner rejected claims 1-10 on various grounds. The Applicant responds to each ground of rejection as subsequently recited herein and requests reconsideration of the present application.

Oath/Declaration

The oath or declaration was found defective for failing to identify the foreign application for patent on which priority is claimed pursuant to 37 CFR 1.55. A new oath or declaration is provided herewith.

Specification

The disclosure was objected to and the preliminary amendment filed 12/28/05 was not entered because the oath or declaration is defective and the preliminary amendment did not reference the PCT application. A new oath or declaration is provided herewith and the specification amended before the first paragraph beginning at page 1, line 1, to reference the PCT application.

Claim Objections

Claims 9 and 10 were objected to for informalities due to minor typographical errors regarding said fourth LED and said fifth LED, respectively. Claims 9 and 10 have been amended herein to correct the minor typographical errors and not to avoid any cited reference.

35 U.S.C. §102 Rejections

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the . . . claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPO2d 1913, 1920 (Fed. Cir. 1989). Thus, to

warrant the §102(b) rejection, the references cited by the Examiner must show each and every limitation of the claims in complete detail. The Applicant respectfully asserts that the cited references fail to do so.

A. Claims 1 and 2 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Publication No. 2003/0222791 to Smalls (the *Smalls* publication).

The Applicant respectfully asserts that the *Smalls* publication fails to teach or suggest all the claim limitations of the rejected claims. The *Smalls* publication fails to disclose, teach, or suggest a traffic light wherein said switch controller (21) is further operable to prevent simultaneous closure of said first electronic switch (32) and said second electronic switch (42), as recited in amended independent claim 1.

Claim 2 has been cancelled herein.

Withdrawal of the rejection of claim 1 under 35 U.S.C. §102(b) as being anticipated by the *Smalls* publication is respectfully requested.

B. Claims 6-8 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Publication No. 2002/0175826 to Hutchison, *et al.* (the *Hutchison* publication).

The Applicant respectfully asserts that the *Hutchison* publication fails to teach or suggest all the claim limitations of the rejected claims. The *Hutchison* publication fails to disclose, teach, or suggest a traffic light wherein said switch controller (71) is further operable to prevent simultaneous opening of said first electronic switch (81) and said second electronic switch (91), as recited in amended independent claim 6.

Claim 7 has been cancelled herein.

Claim 8 depend directly from independent claim 6 and so include all the elements and limitations of independent claim 6. The Applicant respectfully submits that dependent claim 8 is allowable over the *Hutchison* publication for at least the same reasons as set forth above with respect to independent claim 6. The Applicant also submits that the *Hutchison* publication fails to disclose, teach, or suggest a traffic light wherein said switch controller (71) is further operable

to prevent simultaneous opening of said second electronic switch (91) and said third electronic switch (101), as recited in amended dependent claim 8.

Withdrawal of the rejection of claims 6 and 8 under 35 U.S.C. §102(b) as being anticipated by the *Hutchison* publication is respectfully requested.

35 U.S.C. §103 Rejections

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references when combined must teach or suggest all the claim limitations. *See* MPEP 2143. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). *See* MPEP 2143.03. The Applicant respectfully asserts that the cited references fail to teach or suggest all the claim limitations.

C. Claims 1-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,809,655 to Colby (the *Colby* patent) in view of U.S. Patent No. 6,362,578 to Swanson, *et al.* (the *Swanson* patent).

The Applicant respectfully asserts that the *Colby* patent and the *Swanson* patent, alone or in combination, fail to teach or suggest all the claim limitations of the rejected claims. The *Colby* patent and the *Swanson* patent fails to disclose, teach, or suggest a traffic light wherein said switch controller (21) is further operable to prevent simultaneous closure of said first electronic switch (32) and said second electronic switch (42), as recited in amended independent claim 1.

The Applicant also respectfully disagrees with the Examiner's assertion that the *Colby* patent discloses first to fifth LED circuits selectively controlled by a single control module. At most, the prior art discussed by the *Colby* patent discloses traffic signals with various numbers and configurations of lamps, but is silent as to the lamps being controlled by a single control module. *See* Figure 4B; column 1, line 43 through column 2, line 4.

Claims 3-5 depend directly or indirectly from independent claim 1. Therefore, the dependent claims include all the elements and limitations of independent claim 1. The Applicant respectfully submits that dependent claims 3-5 are allowable over the *Colby* patent in view of the *Swanson* patent for at least the same reasons as set forth above with respect to independent claim 1.

The Applicant also submits that the *Colby* patent and the *Swanson* patent fail to disclose, teach, or suggest a traffic light: wherein said switch controller (21) is further operable to prevent simultaneous closure of said second electronic switch (42) and said third electronic switch (52) as recited in amended dependent claim 3; wherein said switch controller (21) is further operable to prevent simultaneous closure of said third electronic switch (52) and said fourth electronic switch (46) as recited in amended dependent claim 4; or wherein said switch controller (21) is further operable to prevent simultaneous closure of said fourth electronic switch (46) and said fifth electronic switch (56) as recited in amended dependent claim 5.

Claim 2 has been cancelled herein.

Withdrawal of the rejection of claims 1 and 3-5 under 35 U.S.C. §103(a) as being unpatentable over the *Colby* patent in view of the *Swanson* patent is respectfully requested.

D. Claims 6-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,809,655 to Colby (the *Colby* patent) in view of U.S. Patent Publication No. 6,362,578 to Xu (the *Xu* publication).

The Applicant respectfully asserts that the *Colby* patent and the *Xu* publication, alone or in combination, fail to teach or suggest all the claim limitations of the rejected claims. The *Colby* patent and the *Xu* publication fails to disclose, teach, or suggest a traffic light said switch controller (71) is further operable to prevent simultaneous opening of said first electronic switch (81) and said second electronic switch (91), as recited in amended independent claim 6.

The Applicant also respectfully disagrees with the Examiner's assertion that the *Colby* patent discloses first to fifth LED circuits selectively controlled by a single control module. At most, the prior art discussed by the *Colby* patent discloses traffic signals with various numbers

and configurations of lamps, but is silent as to the lamps being controlled by a single control module. *See Figure 4B; column 1, line 43 through column 2, line 4.*

Claims 8-10 depend directly or indirectly from independent claim 6. Therefore, the dependent claims include all the elements and limitations of independent claim 6. The Applicant respectfully submits that dependent claims 8-10 are allowable over the *Colby* patent in view of the *Xu* publication for at least the same reasons as set forth above with respect to independent claim 6.

The Applicant also submits that the *Colby* patent and the *Xu* publication fail to disclose, teach, or suggest a traffic light: wherein said switch controller (71) is further operable to prevent simultaneous opening of said second electronic switch (91) and said third electronic switch (101) as recited in amended dependent claim 8; wherein said switch controller (71) is further operable to prevent simultaneous opening of said third electronic switch (101) and said fourth electronic switch (94) as recited in amended dependent claim 9; or wherein said switch controller (71) is further operable to prevent simultaneous opening of said fourth electronic switch (94) and said fifth electronic switch (104) as recited in amended dependent claim 10.

Claim 7 has been cancelled herein.

Withdrawal of the rejection of claims 6 and 8-10 under 35 U.S.C. §103(a) as being unpatentable over the *Colby* patent in view of the *Xu* publication is respectfully requested.

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SUMMARY

Reconsideration of the rejection of claims 1, 3-6, and 8-10 is requested. The Applicant respectfully submits that claims 1, 3-6, and 8-10 fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested.

Dated: November 1, 2007

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